Forest tree seed certification in Canada under the OECD scheme and ISTA rules: summary report for 1986-1990

Pacific and Yukon Region — Information Report BC-X-332

F. T. Portlock

Forestry Canada Forêts Canada

Canada

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The Pacific Forestry Centre undertakes research in response to the needs of the various managers of the forest resource. The results of this research are distributed in the form of scientific and technical reports and other publications.

About the Author

Frank Portlock

Frank T. Portlock is a research technician at the Pacific Forestry Centre in the External Services program of the Research Marketing and Services Division. He is the seed services officer responsible for certification of forest tree seed exported from Canada under the OECD and ISTA rules. Mr. Portlock received his B.A. in biology in 1965 from the University of Oregon.

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Forestry Canada
Pacific and Yukon Region
Pacific Forestry Centre

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Forestry Canada
Pacific and Yukon Region
Pacific Forestry Centre
506 West Burnside Road
Victoria, British Columbia
V8Z 1M5
Phone (604) 363-0600

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Abstract

In the 5-year period 1986 to 1990, Forestry Canada issued 719 certificates of provenance in accordance with the Organization for Economic Cooperation and Development (OECD) scheme for the control of forest reproductive material moving in international trade. This represents 140 seedlots for a total weight of 8617 kg with an estimated market value of $4.4 million. This brings the total number of certificates issued since inception in 1970 of the scheme in Canada to 3024 for 605 seedlots producing 32 754 kg of seed.

During this same period, 261 international certificates of seed quality were issued in accordance with International Seed Testing Association (ISTA) rules, representing 10 292 kg of seed. This brings the total number of certificates issued to 912, representing 30 242 kg of seed.

Résumé

Forêts Canada a émis 719 certificats de provenance entre 1985 et 1990, dans le cadre du programme de l'Organisation de coopération et de développement économiques (OCDE) pour le contrôle des semences d'arbre de reproduction au niveau du commerce international. Les certificats portaient sur 140 stocks de semences ayant un poids total de 8617 kg et une valeur marchande de 4,4 millions de dollars. Le nombre de certificats délivrés depuis la mise sur pied du programme au Canada en 1970 s'élève donc à 3024 certificats pour 605 stocks pouvant produire 32 754 kg de semences.

Au cours de la même période, 261 certificats internationaux de qualité ont été délivrés, en conformité avec le règlement de l'Association internationale d'essais de semences, pour 10 292 kg de semences. Le nombre total de certificats délivrés s'élève maintenant à 912, pour 30 242 kg de semences.

Acknowledgements

The author wishes to acknowledge Dr. D.G. Edwards for his leadership in this program until program changes in April, 1990, and Mr. D.W. Taylor for his work in the program and assistance during the changeover period.

Introduction

The certification of the origin of Canadian forest tree seed began in 1970 under the Organization for Economic Cooperation and Development (OECD) scheme. Responsibility for implementing the scheme in Canada was delegated to Forestry Canada (formerly the Canadian Forestry Service); regional forestry centers of Forestry Canada were given the responsibility of administering seed certification (Appendix 1). The Pacific Forestry Centre, as the most active certification center, has developed the national certification program to its present level. In addition, the Pacific Forestry Centre, which has responsibility for British Columbia and the Yukon Territory, has conducted the majority of certifications on forest tree seed in Canada.

Under the OECD scheme, there are four categories of certification: (starting at the lowest level) 1. source-identified, 2. select stands, 3. untested seed orchards, 4. tested seed orchards. Details of the scheme were described by Piesch and Stevenson (1976) and synopses of activities from 1970 to 1985 were published by Piesch (1977), Pollard (1982), and Edwards (1988). Certification of the physical quality of Canadian forest tree seeds under the International Seed Testing Association (ISTA) rules by Forestry Canada (see Appendix 2) has continued since 1974; the Pacific Forestry Centre has conducted the majority of certifications under this program. Information on ISTA and the accreditation of the Pacific Forestry Centre as a member laboratory was published by Edwards (1983) and synopses of activities from 1979 to 1985 were published by Edwards (1983 and 1988).

Certification under the OECD scheme and ISTA rules is voluntary and is applied only at the request of the exporting seed dealer and the importing country. Most of the seed that is certified in Canada under the OECD scheme is from the source-identified category, and at least 90% of all tree seed that is exported is certified.

Summary of activities prior to 1986

Certification in the first year of operation (1970) of the OECD scheme produced the greatest volume of certified seed for a 1-year period to this date. The number of yearly certifications since that time has fluctuated with the cone crop available. The number of certifications under the OECD scheme during previous 5-year reporting periods is shown in Table 1. Most seed certified was under the source-identified category; very small volumes were certified in the untested seed orchard category. Seed of lodgepole pine (*Pinus contorta* Dougl.), Sitka spruce (*Picea Sitchensis* [Bong.] Carr.), Douglas fir (*Pseudotsuga menziesii* [Mirb.] Franco) and more recently grand fir (*Abies grandis* [Dougl.] Lindl.) have produced the bulk of certified seed.

White spruce cones picked from squirrel caches

Cones are cut to check seed maturity

The volume of seed tested (Table 2) under the ISTA program has also fluctuated with the cone crop available, but retesting of seedlots adds to the work in each reporting period. A broader range of species has been tested under the ISTA program than under OECD, but the number of non-native species has declined in recent years. The number of requests for blue certificates (which apply to samples submitted by seed dealers) compared to orange certificates (which apply to entire seedlots since the sampling is performed by Forestry Canada staff) remained constant.

Certification of origin, 1986-1990

The total weight of seed certified during this reporting period (Table 3) does not significantly differ from the total weight certified during previous reporting periods (Table 1). This also holds true for the number of seedlots certified, certificates issued, and species certified. The large crops of grand fir in 1988 and 1989 and of Sitka spruce in 1986, 1988, and 1990 account for over 50% of the total seed certified (Table 4). The weight of lodgepole pine seed certified has declined in the last 2 years, particularly from the Yukon Territory. Lodgepole pine seed has been largely sold to Sweden and the decline in these sales has been due to reduced plantings in Sweden as a consequence of damage caused by the fungus *Gremmeniella abietina*. This is a fungus native to Sweden which has caused damage in lodgepole pine plantations at northern latitudes. In addition, social pressure to reduce plantings of introduced species is being felt by Swedish forest companies. Sweden also has large volumes of seed in storage from past purchases and their seed orchards are producing seed crops.

The weight of seed certified under the untested seed orchard category of OECD during this reporting period has remained low; 54 kg in 1987, 98 kg in 1988, for a total of 152 kg. However, the registration of untested seed orchards (Table 5) has continued at a strong pace during this reporting period. The registration of Canadian seed orchards is expected to continue as the demand for improved seed grows. Seed production from some orchards exceeds domestic requirements and this surplus seed is now on the international market.

Certification of seed quality, 1986-1990

The official testing of tree seed under the ISTA rules has continued, although there is a slight reduction from previous reporting periods (Table 2 and 6); the total value of seed tested from 1986 to 1990 was estimated at over $5 million. The number of tests conducted fluctuates with the cone crop from year to year, as does the number of OECD certifications. The average annual number of certificates issued for this reporting period is 52, while the average for all years (1979-1990) is 93 certificates. This difference

Table 1. Forest tree seed certified in Canada under the OECD scheme for 5-year periods ending in the years indicated

Year	Seedlots certified	Certificates issued	Species	Weight of seeds (kg)	Estimated value (CDN $)
1975	127	930	9	7373	520 000
1980	173	710	8	8542	2 747 000
1985	165	665	7	8222	5 039 000
1990	140	719	5	8617	4 470 000
Average	151	756	7	8189	3 194 000

Table 2. Forest tree seed certified under the ISTA program in Canada for reporting periods ending in the years indicated

Year	Certificates issued	Species	Weight of seeds (kg)	Estimated value (CDN $)
1982 (4 years)	349	28[a]	10920	2 000 000
1985 (3 years)	302	24[b]	9832	2 500 000
1990 (5 years)	261	22	10292	5 146 000
Average	304	25	10348	3 215 000

[a]Includes 14 non B.C. species
[b]Includes 7 non B.C. species

Table 3. Forest tree seed certified under the OECD scheme in Canada, 1986-1990

Year	Seedlots certified	Certificates issued	Species	Weight of seeds (kg)	Estimated[a] value (CDN $)
1986	27	137	4	2269	573 000
1987	36	142	4	1001	883 000
1988	33	213	5	2608	1 554 000
1989	32	127	6	1354	727 000
1990	12	100	5	1385	733 000
Total	140	719		8617	4 470 000
Average	28	144	5	1723	894 000

[a]Estimated average values per kilogram of seed:
B.C. sources 1986-1990, $500
Yukon sources 1986-1990, $1000

Table 4. Weight (kg) of seeds certified by species under the OECD source-identified category in Canada, 1986-1990

Species[a]	1986	1987	1988	1989	1990	Total
British Columbia						
Abies grandis	35	-	1195	951	-	2181
Abies lasiocarpa	-	-	-	-	51	51
Picea glauca	-	17	-	-	-	17
Picea sitchensis	1462	-	569	56	1170	3257
Pinus contorta	281	309	-	33	9	632
Pinus monticola	-	-	-	3	-	3
Pseudotsuga menziesii	7	-	127	187	61	382
Thuja plicata	-	-	120	25	14	159
Yukon Territory						
Pinus contorta	484	602	499	99	80	1764
Picea mariana	-	19	-	-	-	19
Total	2269	947	2510	1354	1385	8465

[a]Nomenclature as in Hosie, 1979

Table 5. Untested seed orchards registered under the OECD scheme in Canada, by province

Province	Number of registered orchards
British Columbia	12
New Brunswick	28
Nova Scotia	13
Prince Edward Island	6
Total	59

is due to the small number of species producing cones in the years 1989 and 1990. In addition, no non-native species have been tested for the past 3 years. The number of orange certificates issued has also declined with each year, and none was issued in 1990; this provided a considerable saving for Forestry Canada.

Referee testing

As a requirement of membership, ISTA testing stations must participate in periodic tests that evaluate adherence to international testing prescriptions and consistency of analyses. The Pacific Forestry Centre and Petawawa National Forestry Institute participated in such tests in 1987 (lodgepole pine) and again in 1990 (Scots pine), and results were very consistent.

Liaison

Requests for certification and quality testing from seed dealers exporting tree seed from Canada (Appendix 3) are received regularly and frequent visits to the seed dealers' facilities provide continuous informal liaison. A formal meeting was held in 1989 with British Columbia seed dealers to discuss the seed service program at the Pacific Forestry Centre. As a result of those discussions, the seed dealers in British Columbia have recently formed their own association, The British Columbia Seed Dealers Association.

A Forest tree seed inspector's manual (Portlock 1988) was published and distributed to ensure uniform application of OECD certification procedures by all Forestry Canada inspectors. On the international level, the certifying officer for the Pacific Region attended the OECD meeting in Paris in 1987 and in 1989 to ensure that Canada continues to be recognized in the international forest tree seed market.

Future of seed certification in Canada

The volume of seed certified in each of the 5-year reporting periods has been fairly consistent. Recent decreases in Swedish demands for lodgepole pine may change these levels, although these declines could be offset by recent requests from Sweden for alpine fir and black spruce from northern regions. In addition, the increased number of registered untested seed orchards may also begin to add to the volume of certified seed. Forestry Canada will continue to administer the OECD scheme and the ISTA testing program. As changes in these rules are made internationally, they will be implemented in the Canadian program as required.

In 1988, voluntary guidelines for grading and labeling of forest tree seeds moving within Canada were published (Edwards et al. 1988). These voluntary guidelines are being revised by Forestry Canada to cover forest reproductive material used within Canada.

Inspection and sampling of cone collections

Table 6. Number and type of certificates issued under the ISTA rules from British Columbia and the Yukon by the Pacific Forestry Centre, 1986-1990

Species[a]	1986		1987		1988		1989		1990	
	Blue[b]	Orange	Blue	Orange	Blue	Orange	Blue	Orange	Blue	Orange
Abies amabilis	-	-	1	-	1		-	-	-	
Abies grandis	1	-	-	-	9	-	5	-	4	
Abies lasiocarpa	-	-	3	-	-	-	-	-	2	-
Alnus tenuifolia	-	-	1	-	-	-	-	-	-	-
Larix siberica	-	-	1	-	-	-	-	-	-	-
Picea abies	-	-	2	-	-	-	-	-	-	
Picea engelmannii	-	-	-	-	1	-	-	-		
Picea glauca	-	-	2	-	-	-	-	-	4	-
Picea mariana	-	-	12	-	2	-	-	-	1	-
Picea omorika	-	-	2	-	-	-	-	-	-	-
Picea pungens	-	-	2	-	-	-	-	-	-	-
Picea sitchensis	4	-	-	-	5	-	2	-	5	-
Pinus banksiana	-	-	1	-	-	-	-	-	-	-
Pinus contorta	18	20	23	23	35	1	6	6	5	-
Pinus monticola	-	-	1	-	4	-	-	-	-	-
Pinus mugo	-	-	4	-	-	-	-	-	-	-
Pinus nigra	-	-	1	-	-	-	-	-	-	-
Pinus ponderosa	-	-	1	-	4	-	-	-	1	-
Pinus sylvestris	-	-	4	-	-	-	-	-	-	-
Pinus thunbergiana	-	-	1	-	-	-	-	-	-	-
Pseudotsuga menziesii	2	-	3	-	10	-	1	-	8	-
Thuja plicata	-	-	2	-	2	-	1	-	1	-
Total certificates	45		90		74		21		31	
Weight of seeds represented (kg)	2286		1110		4262		755		1879	

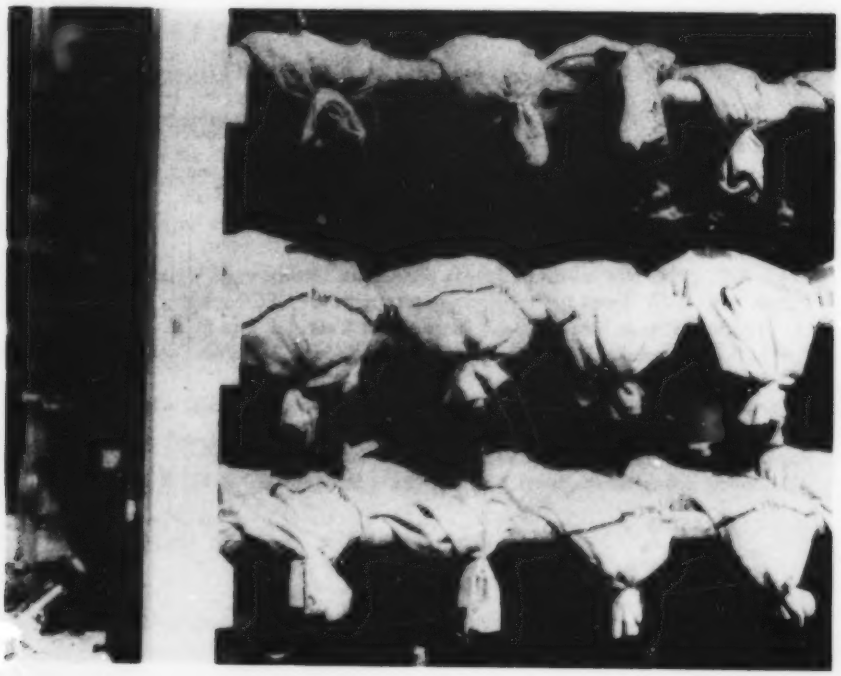
Grand total = 10292 kg

Average per year = 2058 kg

[a]Nomenclature as in Hosie, 1979.

[b]Blue certificates apply to samples submitted by dealer; Orange certificates apply to entire seedlots since sampling was performed by staff of the Pacific Forestry Centre.

Air drying of cones before extraction



Certified seed labelled and sealed for shipment

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Appendix 1. Forestry Canada OECD forest tree seed certifying authorities

Geographic area	Certifying authority	Officer in charge
British Columbia and the Yukon Territory	Pacific Forestry Centre Forestry Canada 506 West Burnside Road Victoria, BC V8Z 1M5	F.T. Portlock
Alberta and the Northwest Territories	Northern Forestry Centre Forestry Canada 5320-122nd Street Edmonton, AB T6H 3S5	Attention: Director General
Ontario	Great Lakes Forestry Centre Forestry Canada P.O. Box 490 1219 Queen St. East Sault Ste. Marie, ON P6A 5M7	V.F. Haavisto
Quebec	Centre de Forestere Forestry Canada Des Laurentidese P.O. Box 3800 1055 Rue du P.E.P.S. Ste. Foy, PQ G1V 4C7	Attention: Director General
New Brunswick	Maritimes Forestry Centre Forestry Canada P.O. Box 4000 Fredericton, NB E3B 5P7	R.F. Smith
Newfoundland and Nova Scotia	Newfoundland Forestry Centre Forestry Canada P.O. Box 6028 Building 304, Pleasantville St. Johns, NF A1C 5X8	Attention: Director General

Appendix 2. Forestry Canada centres authorized under the ISTA rules

Centre	Officer in charge
Pacific Forestry Centre 506 West Burnside Road Victoria, BC V8Z 1M5	F.T. Portlock
Petawawa National Forestry Institute P.O. Box 2000 Chalk River, ON K0J 1J0	B.S.P. Wang

Appendix 3. Seed dealers currently exporting seed under the OECD scheme from the Pacific and Yukon Region

Source-identified category

D.K.Heli-Cropper International Ltd.
3750 Nanaimo Cresent
Abbotsford, BC
V2S 6W8

Att. Mr. Gene Drader
Phone: (604) 852-2715
FAX: (604) 852-2894

Reid, Collins Nurseries Ltd.
P.O. Box 430
Aldergrove, BC
VOX 1A0

Att: Mr. Paulus Vrijmoed
Phone: (604) 856-6408
FAX: (604) 856-4218

Silva Enterprises Ltd.
P.O. Box 2888
Prince George, BC
V2N 4T7

Att: Mr. Peter Hellenius
Phone: (604) 963-8617
FAX: (604) 963-3490

Western Tree Seed Ltd.
P.O. Box. 144
Blind Bay, BC
VOE 1HO

Att: Mr. Frank Barnard
Phone: (604) 675-2463
FAX: (604) 675-2202

Yellow Point Propagation
Long Lake Rd.
R.R. No. 3
Ladysmith, BC
VOR 2EO

Att: Mr. Don Pigott
Phone: (604) 245-4635
FAX: (604) 245-8232

Untested seed orchard category

Canadian Pacific Forest Products Ltd.
Saanich Forestry Centre
8067 East Saanich Road, RR #1
Saanichton, BC
VOS 1MO

Att: Dr. Y.A. El-Kassaby
Phone: (604) 652-4023
FAX: (604) 652-2800

Western Forest Products Ltd.
Lost Lake Seed Orchard
1020 Beckwith Ave.
Victoria, BC
V8X 3S4

Att: Mr. Steve Joyce
Phone: (604) 479-4911
FAX: (604) 727-9835

Yellow Point Propagation
Long Lake Rd.
R.R. No. 3
Ladysmith, BC
VOR 2EO

Att: Mr. Don Pigott
Phone: (604) 245-4635
FAX: (604) 245-8232